

CHEMICAL ENGINEERING OF SEMICONDUCTORS UNDERGRADUATE ACADEMIC CERTIFICATE

The Chemical Engineering of Semiconductors Certificate aims to provide students with foundational training of the principles and practices relevant to microelectronics and closely-related semiconductor industries and applications areas with focus on surface science, materials physics, metrology, and instrumentation. The program will enhance students' knowledge and skills for industry and for advanced studies in the field, particularly for interdisciplinary STEM majors in biology, chemistry, computer science, physics, and biological, chemical, civil, electrical, mechanical, and related engineering.

All required coursework must be completed with a grade of C or better (O-10-a (<https://catalog.uidaho.edu/general-requirements-academic-procedures/o-miscellaneous/>)).

Code	Title	Hours
CHE 4150	Integrated Circuit Fabrication	3
CHE 4550	Surfaces and Colloids	3
Select 6 credits from the following:		6
BE 3410	Electronics in Biological Engineering	
BE 4110	Energy and Environmental Auditing	
CE 4310	Design of Water and Wastewater Systems I	
CHEM 3060	Physical Chemistry II	
ENGR 2120	Python Programming Essentials	
MATH 4280	Numerical Methods	
PHYS 4640	Solid State Physics	
STAT 4190	Introduction to SAS/R Programming ¹	
STAT 4260	SAS Programming ¹	
STAT 4270	R Programming ¹	
Total Hours		12

¹ Only one of the STAT courses (STAT 4190, STAT 4260, and STAT 4270) can be counted toward the certificate.

Courses to total 12 credits for the certificate

1. Demonstrate knowledge of key terminologies, topics, and process principles particular to the needs of semiconductor-related industries.
2. Utilize core knowledge from disciplines such as chemical engineering, chemistry, and physics to solve industry-specific problems in semiconductor manufacturing and related fields of process engineering.
3. Solve complex, interdisciplinary engineering challenges at the intersections of product, process, and systems engineering.